

AMENDMENTS TO THE SPECIFICATION

Amend the specification as set forth below.

[0003] In recent years, wireless network systems have ~~been becoming~~ become increasingly popular. One example of a wireless mobile terminal that functions as a part of such a wireless network system is a notebook personal computer 101 having a wireless LAN card 100 operating in the 2.4 GHz band attached thereto as shown in Fig. 7. The wireless LAN card 100 incorporates interior antennas 102 in the shape of patches, and is attached to the notebook personal computer 101 in such a way that the main faces of the card are kept horizontal in the normal use state. It should be noted here that the main faces denote, of the six faces of a substantially rectangular parallelepiped shape, the two which have the largest area.

[0005] However, with the wireless LAN card 100 shown in Fig. 7, since the antennas are arranged in the interior of the card, it is difficult to obtain satisfactory antenna gains in all directions through 360 degrees in the horizontal plane. As shown in Fig. 8, ~~this~~ This problem can be overcome by running an antenna cable 103 out of the wireless LAN card 100 and connecting it to an externally placed high-gain antenna 104. This, however, makes it necessary to carry around the high-gain antenna 104 when the user carries around

the notebook personal computer 101 as a wireless mobile terminal, and to place the high-gain antenna 104 somewhere or hold it in some way when the user uses it. This is ~~troublesome~~ inconvenient.

[0008] ~~An object~~ Preferred embodiments of the present invention ~~is to provide~~ a wireless transmission/reception card that excels in portability and that, when attached to a particular appliance, offers an enhanced antenna gain in the horizontal plane in the normal use state. ~~Another object~~ Other aspects of the present invention ~~is to provide~~ include such a particular appliance. Still another ~~object aspect~~ of the present invention ~~is to provide~~ includes a wireless network terminal built with such a wireless transmission/reception card and such a particular appliance.

[0009] ~~To achieve the first object, according~~ According to one aspect of the present invention, a wireless transmission/reception card is provided with a pole-shaped antenna for wireless transmission and reception. Here, the length direction of the pole-shaped antenna is substantially parallel to the main faces of the wireless transmission/reception card.

[0010] ~~To achieve the second object, according~~ According to another aspect of the present invention, a wireless transmission/reception card supporting apparatus is provided with a mount on which the wireless transmission/reception card described

above is mounted. Here, when the wireless transmission/reception card is mounted on the mount, the pole-shaped antenna thereof is set upright substantially in the vertical direction in the normal use state.

[0011] ~~To achieve the third object, according~~ According to still another aspect of the present invention, a wireless network terminal is provided with the wireless transmission/reception card described above, a headset serving as the wireless transmission/reception card supporting apparatus described above, and an electric appliance. Here, the headset and the electric appliance have communication interfaces compatible with each other.

[0012] ~~This and other objects and~~ Particular features of the present invention will become clear from the following description, ~~taken in conjunction with the~~ of preferred embodiments with reference to the accompanying drawings in which:

[0013] First, a wireless transmission/reception card according to a preferred embodiment of the invention will be described. According to the ~~invention~~ preferred embodiment, a wireless transmission/reception card is provided with at least one pole-shaped antenna for wireless transmission and reception, and the length direction of this pole-shaped antenna is substantially parallel to the main faces of the wireless transmission/reception

card. It should be noted here that the main faces of a card denote, of the six faces of a substantially rectangular parallelepiped shape of the card, the two which have the largest area.

[0014] Fig. 1 shows a perspective exterior view of a wireless transmission/reception card according to the ~~invention~~ preferred embodiment. The wireless transmission/reception card 1 shown in Fig. 1 is provided with two pole-shaped antennas 2 and 3 for achieving transmission and reception by a diversity method. The length direction of the pole-shaped antennas 2 and 3 is substantially parallel to the main faces of the wireless transmission/reception card. According to the ~~invention~~ preferred embodiment, a wireless transmission/reception card is so constructed that a pole-shaped antenna provided therein is substantially parallel to the main faces of the wireless transmission/reception card, and thus the wireless transmission/reception card is flat-plate-shaped as a whole. This makes the wireless transmission/reception card more easily portable, i.e., can more easily be put in a bag or the like that is carried around, than a wireless transmission/reception card that is so constructed that an antenna provided therein protrudes perpendicularly from one of the main faces of the wireless transmission/reception card and that is thus L-shaped as a whole.

Moreover, here, there is no need to make the antenna foldable as in the wireless LAN card shown in Figs. 9A and 9b. This helps save the user the trouble of setting the pole-shaped antenna upright every time the wireless transmission/reception card is used.

[0016] Next, a headset according to ~~the invention~~ another embodiment will be described. A headset according to ~~the invention~~ this embodiment permits the wireless transmission/reception card shown in Fig. 1 to be mounted thereon. Fig. 2 shows a perspective exterior view of a headset according to ~~the invention~~ this embodiment with the wireless transmission/reception card shown in Fig. 1 mounted thereon.

[0022] A dipole antenna, which is a kind of pole-shaped antenna, can offer an antenna gain of 2.14 dBi through 360 degrees in the horizontal plane. On the other hand, a chip-shaped interior antenna as shown in Fig. 7, typically, ~~is nondirectional and offers~~ an antenna gain of about 0 dBi, seldom offering an antenna gain over 2.14 dBi in current technology. Accordingly, it is possible to obtain a higher antenna gain proper in the case shown in Fig. 2 than in the case shown in Fig. 7.

[0042] Next, a description will be given of a liquid crystal television monitor as an example of an electric appliance that needs to be installed in a remote place in order that the user,

moving to the remote place without carrying a headset itself, can perform wireless transmission and reception in good condition in the remote place by using a wireless transmission/reception card according to the invention. Fig. 6 shows a perspective exterior view of a liquid crystal television monitor according to another embodiment of the invention. In Fig. 6, such components as are found also in Fig. 1 are identified with the same reference numerals, and their detailed explanations will not be repeated. The liquid crystal television monitor shown in Fig. 6 is provided with a slot 38. When a wireless transmission/reception card 1 is inserted in the slot 38, the pole-shaped antennas of the wireless transmission/reception card 1 are kept upright substantially in the vertical direction, and the USB interface (not illustrated) provided inside the wireless transmission/reception card 1 is connected to the USB interface (not illustrated) provided inside the liquid crystal television monitor, making data exchange possible between the liquid crystal television monitor shown in Fig. 6 and the wireless transmission/reception card 1. In the liquid crystal television monitor shown in Fig. 6, as a result of the wireless transmission/reception card 1 being inserted in the slot 38, the pole-shaped antennas of the wireless transmission/reception card 1 are kept upright substantially in the vertical direction. This helps enhance the antenna gain in

the horizontal plane in the normal use state. However, depending on where the liquid crystal television monitor is installed, the pole-shaped antennas of the wireless transmission/reception card mounted on the liquid crystal television monitor may be located, as seen from a transmission/reception partner (for example, a wireless access point, wireless home gateway, or the like), behind the user's body. This lowers the antenna gain.